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AN ACCOUNT
OF
A NEW MODE OF OPERATION
FOR THE REMOVAL
OF
THE OPACITY IN THE EYE,
CALLED
CATARACT.

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1801.

TO HIS GRACE

THE DUKE OF PORTLAND,

&c. &c. &c.

MY LORD DUKE,

THE ſubject of the following ſheets is not wholly unknown to you, Your Grace having, with the moſt obliging condeſcenſion, indulged me in ſome converſations relative to it.

An endeavour to do great good by means leaſt liable to the riſk of doing harm, ſo perfectly in uniſon with Your own humane and benevolent ſentiments, could not fail of being intereſting to Your Grace.

The proſpect of diffuſing whatever advantages may be derived from an invention, which, I flatter myſelf, is not without the promiſing appearance of utility, has led me to a particular deſcription of its purpoſes, and preſent ſtate of probation.

May I entreat the honor of Your Grace's acceptance of it, and that I may be permitted to ſubſcribe myſelf,

With the higheſt reſpect,

My Lord Duke,

Your Grace's

Much obliged and

Moſt obedient humble Servant,

JAMES EARLE.

HANOVER-SQUARE,
July 31, 1801.

A NEW METHOD OF REMOVING THE CATARACT.

MORBID affections of any parts of the animal body cannot be well underſtood without a previous acquaintance with them in their natural ſtate. Some account, therefore, of the organ of ſight will properly precede the deſcription of a principal diſeaſe to which it is liable. It is not, however, my intention to enter into a minute anatomical inveſtigation of all the parts of the eye. An outline of its principal features and properties will be ſufficient for my preſent purpoſe, which is to point out the difference exiſting between an operation which will be deſcribed, and thoſe which have hitherto been performed to produce the ſame effects.

We will firſt then conſider the eye in its ſituation within the orbit, where we ſhall find it ſecurely guarded by eminences of bone, by the eyebrows, and by the lids, edged with rows of hair called eye-laſhes. Removed from the orbit, its general appearance is that of a ſegment of a ſmall ſpheroid placed on a larger. The ſmall ſegment projects anteriorly, and is covered by a diaphanous coat called cornea tranſparens, or lucida. The firſt, or external membrane, which partially covers the large globe, is called conjunctiva. It covers ſo much of the eye as appears white, and, being reflected all round, lines the two eye-lids. Thus returned from the eye to the inſide of the eyelids, it effectually hinders any extraneous bodies from getting behind the eye into the orbit, and ſmooths the parts it covers, which makes the friction leſs between the eye and the eye-lids. The proper coats which form the large globe are three: the external, to which the firm convexity of the eye is owing, is named tunica ſclerotica, or cornea opaca, the anterior part of which forms the cornea tranſparens; the next is called the choroides; within this is the retina, formed by an expanſion of the optic nerve.

The anterior portion, or perforated ſeptum of the tunica choroides, has the name of uvea; the opening through the centre of the ſeptum is termed the pupil, and the anterior lamina of this ſame ſeptum is called the iris, which is of different colours in different eyes, ſuch as the eyes appear—as gray, black, or hazel,—for, being ſeated under the cornea tranſparens, it gives ſuch an appearance to that as itſelf poſſeſſes.

The globe of the eye is filled with ſubſtances more or leſs fluid, which are called the humors of the eye. Theſe are three in number—the aqueous, the cryſtalline, and the vitreous.

The aqueous humor is a very limpid fluid, and fills the ſpaces between the cornea lucida and the iris, and between the uvea and cryſtalline, which communicate with each other through the hole of the pupil. Theſe two ſpaces are called the chambers of the eye, and are diſtinguiſhed into anterior and poſterior. In this fluid the iris moves freely, as it dilates and contracts from an involuntary action with which it is indued for the admiſſion or excluſion of the rays of light.

The cryſtalline is a ſmall lenticular body of a pretty firm conſiſtence, and tranſparent like cryſtal, contained in a tranſparent membranous capſula. It is placed behind the uvea and anterior to the vitreous humor.

The vitreous humor is a tranſparent limpid fluid, which fills the greateſt part of the globe of the eye, that is, almoſt all the ſpace which anſwers to the extent of the retina, except a ſmall portion behind the uvea, where it forms a foſſula, in which the cryſtalline humor is lodged. The vitreous humor alſo ſerves as a medium to keep the cryſtalline humor and the retina at a due diſtance. It is contained in a fine tranſparent capſula, the internal lamina of which gives off through the whole ſubſtance of the humor a great number of cellular elongations or ſepta, ſo extremely fine as not to be viſible in the natural ſtate, the whole maſs appearing then uniform, and equally tranſparent through its whole ſubſtance.—This humor being dexterouſly taken out of the globe, preſerves its conſiſtence for ſome time in the capſula, almoſt like the white of an egg, then runs off by little and little until it diſappears; which proves it not to be one body of fluid, like the aqueous humor, but divided into cells, which are thus gradually emptied. This circumſtance is of very material conſequence reſpecting operations which are performed on the eye.

In the lower part of the globe, nearly oppoſite to the pupil, is inſerted the great optic nerve, by means of which all impreſſions on the retina are tranſmitted to the ſenſorium[*].

Thus formed and conſtructed, the eye may be conſidered as a camera obſcura, with the advantage of being aſſiſted by the living powers.

The pupil admits the rays of light; the large globe of the eye, filled with the vitreous humor, and lined with a black ſurface called nigrum pigmentum, forms the dark chamber; the retina or expanded optic nerve is as the ſheet or white paper on which objects are painted; the cryſtalline humor, like the convex lens in the camera, is placed behind the pupil; through this all the rays of light muſt paſs, and be refracted in their paſſage to the retina. On the tranſparency of this body the powers of viſion will ever depend; but this, like every other part of our periſhable ſyſtem, is ſubject to alteration and decay.

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[*] No. 1. in the annexed plate will explain the conſtruction and ſituation of the different parts of the eye.

THE diſeaſe, commonly denominated a cataract, is now well underſtood to conſiſt in an opacity of this body, which, whenever it takes place, muſt, according to its degree, either impede or deſtroy viſion.

There are many ſpecies of cataract; but it is not neceſſary to enter into a particular deſcription of their variety in this place, as the ſubject has been amply diſcuſſed by able writers. I ſhall confine myſelf to the object of my preſent purſuit, which is to endeavour to point out the beſt method of removing the obſtruction to the light which is cauſed by the cataract, by the removal of which alone, the power or perfection of viſion can be reſtored.

The means which the antient profeſſors of the art of ſurgery employed for this purpoſe was called couching, and conſiſted in paſſing a needle into the tunica conjunctiva, through the coats and part of the vitreous humor to juſt behind the iris. By the aſſiſtance of this inſtrument the opake body was depreſſed from its natural ſituation to a part of the eye where it could no longer impede the admiſſion of the rays of light. This operation has continued with no great variation to the preſent time, and needles of different forms have been invented for this purpoſe, ſome practitioners uſing round ones, others thoſe with a flat ſurface. For my own part, I have ſeveral times experienced an advantage in having a little cavity formed on one face of a flat needle, and left unpoliſhed; which gave a better hold of that little ſlippery body, the lens, than could be gained by the even poliſhed ſurface which is uſually given to them.

Performed, however, in the beſt manner, the operation of couching, as it has hitherto been executed, is often uncertain, unſatisfactory, and liable to objections, ſome of which, having fallen under my own obſervation, I ſhall take notice of.

The needles, of whatever form, were neceſſarily pointed, and the flat ones had a cutting edge to make way through the coats of the eye; of courſe it muſt follow, that when the needle was in the eye, where any edge or point ought, if poſſible, to have been diſpenſed with, both were employed in accompliſhing this very delicate and difficult part of the operation, which conſiſted in diſlodging the cataract from its ſituation behind the pupil, and preſſing it down to the inferior part of the orbit. The execution of this was often attended with conſiderable difficulty. Sometimes the cataract was ſoft, and was immediately divided into fragments by the touch of the needle, when a portion or portions of it only could be preſſed down, while ſome remained attached to the capſule of the cryſtalline, and which repeated preſſure of the needle could not remove; and ſometimes, after having by reiterated attempts preſſed down the whole of the lens, part of its capſule would ſtill remain, and baffle the effect expected, by ſtill preſenting an opake body behind the pupil; nor can this be wondered at, if we conſider how eaſily a little floating particle may elude the contact and preſſure of a needle in a large chamber, where it could meet with little or no reſiſtance: for the vitreous humor is formed in cells of ſo delicate a texture, that they readily give way to a very ſmall force, ſo that, in fact, it is nearly like attempting to attach any little body ſwimming in a fluid. The round needles muſt have originally been intended to ſtick into the opake lens, and by that means to carry it out of ſight. This, I believe, would ſeldom have been practicable; or, if it had been, would have proved perhaps more embarraſſing than uſeful, from the difficulty of diſengaging it from the cataract when it was required. Conſidered in the light of inſtruments of depreſſion, they certainly had conſiderably leſs power than the flat ones; but, in either ſhape, it muſt be evident to reaſon, as it is confirmed by practice, that the difficulties which have been mentioned muſt ariſe from the want of a counter preſſure.

The opacity of the cryſtalline ſometimes is cauſed by a change of its ſubſtance into a fluid ſtate, contained in its capſule, which, let out by the firſt puncture of the needle, readily diffuſes itſelf partly into the anterior chamber, and partly behind the pupil, where it is abſorbed, and ſo far the obſtructing medium is removed; yet ſtill the capſule ſometimes remains and preſents difficulties, which are not removeable by the needle.

Adheſions ſometimes take place between the diſeaſed lens and the iris, from which it is neceſſary to be diſengaged before it can be diſlodged from its nidus. This was to be done by the ſame needle, which it muſt be recollected was both pointed and cutting; and while with repeated efforts the ſides of the needle were employed in dividing the lens from its connections, the point was often engaged in wounding the oppoſite ſide of the iris: but if with great dexterity this was avoided, the diviſion of ſome veſſels which connected them muſt happen before the needle could be brought into view; which is an eſſential circumſtance in this period of the operation, as it guides and directs the hand in the completion of the buſineſs. In doing this with the ſharp edge of the needle, ſome blood-veſſels were occaſionally and unavoidably pricked or wounded, which furniſhed ſufficient blood to colour the aqueous humor in the anterior chamber of the eye. The view of the point of the needle through the pupil was conſequently obſcured, and the completion of the operation was prevented.

Suppoſing that no adheſions had taken place —that the whole lens was ſufficiently firm to bear the needle, and was readily and eaſily carried out of ſight, it nevertheleſs ſometimes ſlipped from the needle, and was left at no great diſtance from the pupil: in conſequence it was liable, ſome time after the operation was finiſhed, to riſe again, and preſent itſelf behind the pupil; and though, ſuppoſing it freed from all connecting veſſels, there is little doubt of its being abſorbed, yet if any veſſels remained to convey nouriſhment, it might continue undiſſolved. However, whether capable of being annihilated or not, the ſimple fact of it riſing again muſt be very unpleaſant, and diſcouraging to the operator as well as to his patient.

It was generally agreed, that it was neceſſary to wait till the cataract was firm before it could be a fit object for the couching needle. This ſtate it was often impoſſible to aſcertain ; and accordingly I have often ſeen the needle of an experienced operator paſs through and through, without making any impreſſion on a cataract, which he had pronounced to be firm. With regard to waiting till a fluid cataract ſhould become firm ; that was certainly an erroneous idea : for in many caſes, I believe I may ſay in general, when the opacity of the lens is formed by the ſoftening or diſſolution of it, ſuch cataract very rarely alters its nature, or becomes firm ; and indeed it ſhould be conſidered, that if there were a chance of this being the caſe, all the while the operation is delayed, the patient ſuffers the ills that attend ſo diſtreſſing a ſituation.

Theſe facts and circumſtances certainly tended to render the operation of couching, as it has hitherto been performed, uncertain and unſatisfactory. It is therefore no wonder that practitioners ſhould embrace another method which appeared likely to remove the complaint with more certainty and preciſion.

This was an entirely new plan, and conſiſted in an operation by which the opake lens was to be taken out of the eye. It was certainly a moſt ingenious invention, and took its riſe from the circumſtance of a portion of a cataract falling through the pupil into the anterior chamber; which was let out by an inciſion through the cornea, and furniſhed the idea of the poſſibility of extracting the whole cataract by the ſame way. I believe this operation was firſt adopted by Monſ. Petit: It has ſince been much improved, and is now probably performed in the higheſt perfection of which it is capable both in this and other countries. It muſt be allowed that it has many advantages over the ordinary method of couching; ſuch as there being no neceſſity to wait till the cataract acquires firmneſs, as it is capable of being extracted in any ſtate; and when that opake body is completely removed out of the eye, it is ſcarcely neceſſary to obſerve, there can be no poſſibility of the return of the cataract. Theſe circumſtances indiſputably give it a ſuperiority over couching: yet, with all its advantages, it muſt be confeſſed that the operation of extraction, in the uſual way of performing it, has alſo diſadvantages of no ſmall conſequence. Some of them I ſhall think proper to take notice of; but my obſervations will be conciſe, as the advantages and diſadvantages attending this operation have been ſufficiently diſcuſſed by authors who have written profeſſedly on the ſubject.

To extract the cataract, as it has hitherto been performed, it is neceſſary to make an inciſion completely through the cornea tranſparens, by means of a knife of a ſhape adapted to the purpoſe. Whoever will conſider the mobility, both voluntary and involuntary, to which the eye is ſubject, in perſons of every age, muſt ſee that this is an operation very difficult to be accompliſhed, and cannot be well done without great dexterity and practice; it is therefore principally confined to few operators, which alone is a great inconvenience to thoſe who, reſiding at a diſtance, require ſuch relief; and manifeſts the importance to mankind of an eaſier method, even were the operation itſelf not liable to other objections. To prove theſe aſſertions not unfounded, it will be neceſſary to take notice of ſome circumſtances which occur in the performance of the operation; and, firſt, I muſt remark, that if the inciſion be not made with great accuracy and preciſion in a ſemicircular form, it muſt paſs acroſs the cornea, and preſent an obſtruction to viſion; or, perhaps, implicate the iris in the healing of the wound. Though in the hands of a ſkilful operator this may generally be avoided, it muſt be allowed that a rapid inverſion of the eye toward the noſe at the firſt touch of the inſtrument, or the ſudden diſcharge of the aqueous humor, which is ſometimes attended with the falling down of the iris into the way of the knife, muſt prove embarraſſing to the moſt experienced.

We will, however, ſuppoſe it done under the moſt favorable circumſtances, and in the moſt perfect manner; ſtill, it is to be obſerved, that the opening in the cornea muſt neceſſarily be very large, ſo as to form a flap of about two-thirds, according to Daviel; and according to Wenzel, Rickter, and others, nine-ſixteenths, or ſomething more than half of its circumference, to allow a free exit to the cataract; which extenſive

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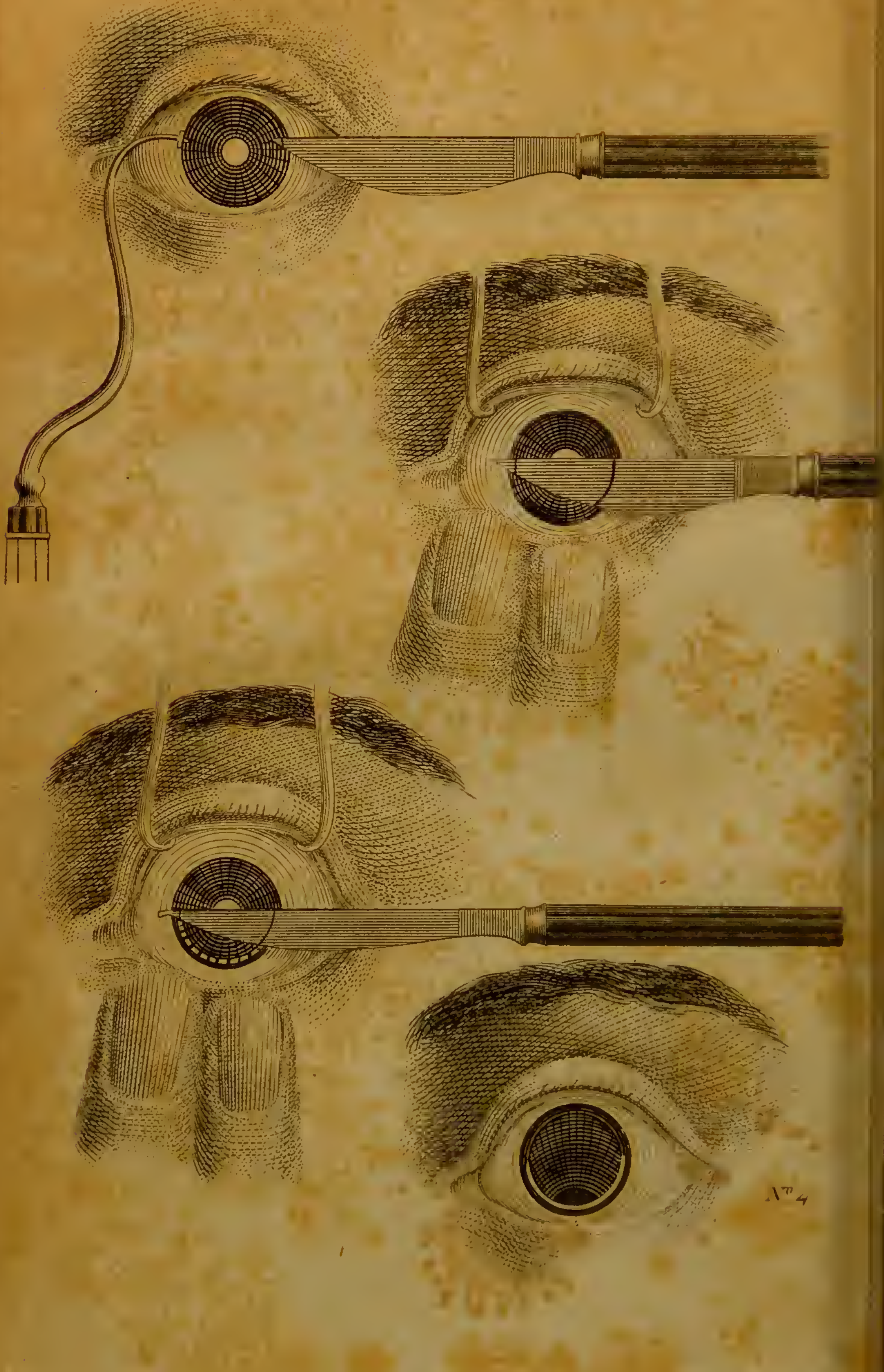

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wound in itſelf, as will be ſhown, is an object of very ſerious conſideration *.

The next objectionable circumſtance is, that in this operation the cataract is to be brought out through the pupil. This in many caſes may be eaſily effected by very gentle preſſure, without any material injury to the iris; but if the cataract be large and of firm conſiſtence, or the iris not in a very dilatable ſtate, a degree of preſſure may become neceſſary, which may cauſe ſo great a diſtenſion of the iris, as in ſome caſes to lacerate it, or to render it paralytic. Sometimes, on dividing the cornea, a ſpaſm from irritation on the muſcles of the eye has

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* The plate No. 1. is taken from a modern treatiſe on the Extraction of the Cataract, and ſhows how, and to what extent, the operation is recommended to be performed.

The figure No. 4. repreſents a deformed pupil too near the cicatrix, which, the author obſerves, is the common conſequence of a ſudden protruſion of the cataract.

forced the iris forward ; and in ſome caſes it was impoſſible to prevent it from protruding, ſo as to cauſe the deformity called ſtaphiloma.

The difficulty of ſearching after, and bringing away ſmall portions of the cataract or its capſule which may be left behind, is alſo very conſiderable, as this is to be done by repeatedly paſſing a little ſcoop or hook under the flap of the cornea and through the pupil, which ſometimes wounds the capſule of the vitreous humor, and cauſes the eſcape of a conſiderable portion of that body.

When the cataract is completely removed, the flap of the cornea is to be laid down, and left to heal or unite by the firſt intention ; and on this depends not only the ſucceſs of the operation, but the very exiſtence of the globe of the eye. In general the powers of nature may be equal to the completion of this work ; but it undoubtedly ſometimes has happened, either from peculiarity of conſtitution, from the feveriſh reſtleſſneſs of the patient, from the falling down of the iris, from the inverſion of the lower eyelid into the wound, or from other cauſes, that, after ſo extenſive a diviſion of the cornea, a complete union has not taken place. Whenever this unfortunate circumſtance occurs, a fiſtulous opening continues, by which the aqueous humor is conſtantly diſcharged, and the cornea left flaccid; indeed, ſuch a degree of inflammation has ſometimes followed, that the whole of the vitreous humor has been diſcharged, and the eye has ſunk within the orbit.

Daviel mentions two perſons who loſt their eyes in this manner, in conſequence of opening the cornea transparens, and extracting the cataract immediately after the operation of couching had been attempted and had failed. It is almoſt incredible that any one ſhould have been ſo raſh as to have done both operations together, as the derangement which muſt unavoidably have been cauſed in the interior of the eye in the firſt inſtance by the needle muſt have rendered the ſubſequent operation of extraction almoſt certain of terminating as it did, in the ſuppuration and diſcharge of the humors of the eye. I thought it right to take notice of theſe caſes of Monſ. Daviel, though it is not probable that ſo imprudent an attempt will ever again be imitated.

That the operation of extracting through the pupil and divided cornea has been often ſafely and ſucceſsfully performed, and that many perſons have received perfect ſight by it, is a fact well known and eſtabliſhed; but it muſt alſo be acknowledged, that ſuch failures and accidents as have been mentioned do ſometimes attend the moſt prudent and dexterous performance of this operation; and it muſt be evident, from the nature and offices of the parts of the eye which are immediately the ſubjects of it, that whenever ſuch accidents do happen, they muſt be without the poſſibility of a remedy.

From repeated reflexions on all theſe circumſtances, I muſt confeſs that I have long been diſſatisfied with the operations both of couching and extracting, as hitherto practiſed; and have been led to conſider whether ſome more ſafe and eaſy method might not be invented to get rid of the opake cryſtalline, and reſtore the tranſmiſſion of light to the ſeat of viſion.

Extracting the cataract, for reaſons which have been given, appeared preferable to couching. My firſt thoughts, therefore, induced me to aim at the improvement of that operation; and it occurred to me, that if it were poſſible to extract the cataract by any other way than through the pupil, a very material point would be gained, as we ſhould by ſuch means avoid diſturbing and injuring thoſe delicate and tender parts of the eye, which are ſo peculiarly eſſential to the perfection of viſion. It was obvious that this could only be accompliſhed by an opening behind the iris; and, purſuing this idea, I conceived that by the ſame route through which the couching needle is made to paſs, an inſtrument might be introduced which ſhould be capable of taking hold of the cataract and extracting it.

With a view to learn what had been done by others for any ſuch purpoſe, I conſulted authors and converſed with practitioners; but, though they were profuſe in directions how to divide the cornea and extract the cataract through the pupil, I could meet with none who had ever attempted to bring it out by any other way.

Mr. Bell, in his Syſtem of Surgery, deſcribes the difficulties attending the uſual methods of extracting the cataract, and conceives that the failure of ſight, which he ſays often follows this operation in a little time, proceeds from violence done to the iris.

This, he remarks, is a membrane of the moſt delicate texture; and, as the pupil through which the cataract is forced, is not nearly large enough for admitting the lens to paſs with eaſe, this can ſeldom be accompliſhed without great hazard of injuring this very nice and uſeful part of the eye. In various caſes, he obſerves, the iris is torn in different places, and appears to be irregular in its contraction and dilatation from the time of the operation being performed; and proceeding upon this idea, he thinks that it would be an object of great importance to extract it by any other manner, that would not expoſe the iris to be injured, and that it may be done by opening behind this membrane, inſtead of making an inciſion in the uſual place in the lucid cornea; and he obſerves that it would be attended with this advantage, that no inconvenience would enſue from the cicatrix. Mr. Bell ſays he has performed the operation in this way on other animals, but imagines that it has never been put in practice in the human eye. If it ever ſhould be performed in this manner, he recommends an inciſion to be made about the tenth of an inch behind the transparent cornea of ſufficient ſize to let the cataract paſs, and then a ſharp-pointed hook to be introduced, to ſtick into the lens and bring it away.——I cannot ſay that this method appeared to me completely eligible, as the hook ſeemed ill adapted to get hold of the lens and bring it out through the inciſion; or, if it could accompliſh that, it could not command the little floating parts of the capſula, which might be left; and as it had not been ſanctioned by experience, I did not feel inclined to adopt it.

In the compilation of Lawrence Heiſter, there is ſome account of a needle made to ſplit, or open and ſhut, by means of which the author appears to have intended to take hold of any portion of the membrane or capſule which might be left after couching; and by turning round the needle to have entangled it, and brought it away; but he does not ſeem to have had an idea of extracting any part of the cataract. Indeed, from the minuteneſs and form of the ſplit needle, it is evident that it would have only cut through the cataract, and was incapable of maintaining its hold. It is alſo to be obſerved, that in this inſtrument the pointed or ſharp part, neceſſary to pierce through the coats of the eye, protruded beyond the ſhorter part of the blade, and remained in the eye while the blades were opened, and till the operation was finiſhed. This circumſtance muſt have rendered any uſe which could have been made of the expanſion of the needle awkward, difficult, and dangerous, as it had the ſame diſadvantages which were remarked when ſpeaking of the uſe of the common couching-needle. On the efficacy of this inſtrument, Heiſter himſelf expreſſes

preſſes a doubt that it ever was made uſe of to advantage. The concluding words of his account of it are: "Ego valde dubito an "unquam cum fructu eadem (acus) fuerit "adhibita."

Mr. Hodſon, an ingenious and ſcientific practitioner at Lewes in Suſſex, alſo ſhowed me a needle which he had invented with a view to remove any portion of capſule which might be left after couching, or which might afterwards become opake. Mr. H. informed me he had not made any trial of it; but as it was conſtructed ſimilarly to that deſcribed by Heiſter, it was of courſe liable to the ſame objections.

As none of theſe methods completely met the idea I had conceived of the practicability of extracting the body of the lens behind the iris, the ſubject continued to engage my attention, which has at length ſucceeded in the contrivance of an inſtrument which I hope will be found not inadequate to the purpoſe.

* The inſtrument which I now take the liberty of offering to the conſideration of the profeſſion, is ſimple, and capable of

executing the purpoſe for which it is deſigned, without the aid of knives, ſcoops, hooks,

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* Some few deviations from the uſual practice in ſurgery occurring to me as improvements, have been from time to time *unreſervedly* communicated, with a deſire to make them more extenſively uſeful. Actuated by the ſame motive, may I be excuſed if in this place I indulge in a few obſervations on ſome of thoſe which I have thought worthy of the attention of the public?—Such appeared to me the application of ice in caſes of burns. From the *prevailing* faſhion of female dreſs, of ſuch combuſtible materials, ſo many deplorable accidents had happened, that I thought I could not do a more acceptable ſervice to the public than in recommending the beſt method which I knew of treating injuries produced by fire on the human body. In general it has been well received; and from my own obſervation, as well as from the accounts with which I have been favored, I am convinced that it is a moſt powerful agent in leſſening the effect of fire in thoſe caſes. One gentleman only, whom I have heard of, has diſapproved of the plan, and has written in favor of the contrary practice. To the obſervations of this author, it is my intention at my firſt leiſure more fully to reply; at

at preſent I ſhall only obſerve, that the experiments which I have made of the method propoſed by him, have by no means tended to alter my ſentiments, but, had it been neceſſary, would have confirmed me in the preference of the cold plan.

The double ſtaff which I invented to facilitate one of the moſt difficult points in the operation of Lithotomy—the introduction of the Gorget—I have the ſatisfaction to find approved of by many gentlemen of ſcience and abilities. It is not to be expected that new methods ſhould immediately take place of old ones; but diveſting myſelf of prejudice, and reaſoning from experience, I am confident that the double ſtaff will hereafter be adopted, and will be found capable of executing the operation with much more eaſe, ſafety and certainty, than it has hitherto been performed with the common ſtaff. On that principle, and that alone, I take this opportunity again to recommend it to gentlemen who have occaſions, to make trial of it, and to requeſt the favor of their opinions concerning it.

My obſervations on the aſſiſtance to be derived from mechaniſm, in the treatment of the curved ſpine, I have

reaſon

hooks, ſciſſars, or any other aſſiſtance; and ſimplicity, or the avoiding a multiplicity of inſtru-

reaſon to hope have not been found unuſeful. I cannot help here obſerving, that the earlieſt attention ſhould be paid to any deviation from the natural, upright form of the ſpine, as it is a complaint much more eaſily prevented than remedied.

On the treatment of large Hæmorrhoidal excreſcences, the late Mr. Pott intended to write, if his life had been prolonged. In my edition therefore of his works, I have endeavoured to expreſs his ideas, which I had often heard him communicate on that ſubject, and have inſerted them.—I have ſince had many opportunities of proving the excellence of the method which he propoſed for the cure of thoſe complaints, and have found it in every reſpect ſafe and efficacious.—Theſe inſtances I may at ſome future time bring forward, though perhaps not now ſo neceſſary as Mr. Pott thought them in his time, the operation having ſince been often practiſed, and being in general better underſtood.

With the mild and gentle method of curing the Hydrocele by injection, which I was ſo fortunate as to introduce, I have continually freſh reaſons to be ſatisfied, having uniformly ſucceeded in radically curing more than 300 caſes. But it is needleſs to ſay any thing further

on

inſtruments, muſt ever be allowed no inconſiderable deſideratum in all operations. It
conſiſts

on that ſubject; for though at firſt, as a novelty, the operation met with objections, it has by degrees almoſt wholly ſet aſide the former painful methods, is adopted in the public hoſpitals and private practice of this country, and, from the accounts which I have received, is now performed in moſt parts of the civiliſed world. I will only obſerve, that I have twice had opportunities of proving, what in my account of the operation I only advanced as a probable fact, that the cure was produced by the perfect adheſion of the tunica vaginalis to the tunica albuginea. On the examination of two inſtances in which the injection had been uſed with ſucceſs, the adheſion between the coats was found complete.

The preceding recapitulation may poſſibly ſeem oſtentatious. Though unconſcious of any ſuch incentive, and wiſhing to avoid even the appearance of it, I will not deny that I feel no inconſiderable degree of gratification in ſo far having done my duty, that in a profeſſion, whoſe preſent ſtate of excellence is the reſult of progreſſive improvement, and is ſtill far from perfection, I have not ſat down in paſſive acquieſcence with all which I found preſcribed; but where emendation appeared moſt wanting have endeavoured to ſupply the defect. My paſt obſervations, conſiſts of a ſmall ſpear-pointed lancet, of a proper breadth, which introduces a pair of fine forceps into the globe of the eye, and, when ſufficiently inſerted, the ſharp or ſpear-point, by means of a ſpring, is withdrawn, leaving the forceps behind; with theſe the cataract may be gently ſeized, made to quit its connexions, and be brought away through the opening; and thus is completed the whole of the operation.

To uſe this inſtrument properly, it is neceſſary to obſerve that it ſhould be paſſed in through the coats of the eye, juſt behind the iris: when it has paſſed, and the forceps are ſufficiently introduced, the lancet is to be made to retire, and the forceps are to be carried on till the blades appear behind the pupil, when they are to be retracted a little,

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ſervations, ſuch as they were, have been ſubmitted to the teſt of practice. If the method here propoſed be equally well received, I ſhall not think my time misſpent, and ſhall be happy in the idea that it may have tended to the benefit of mankind.

then gently opened, and the cataract to be ſeized with as ſmall compreſſion as may be without ſuffering it to eſcape; the forceps are then, together with the cataract, to be brought out of the eye. If the lens be not ſufficiently firm to bear the preſſure of the forceps, or if, from any other cauſe, the whole be not taken away by the firſt extraction, the inſtrument may be again ſafely introduced through the opening, without the point, and in general with eaſe; but if the tunica conjunctiva be of a looſe texture, and covers or hides the opening through the ſclerotica, a ſmall fine director may be firſt paſſed to facilitate its re-introduction *.

The extraction of the lens is certainly the

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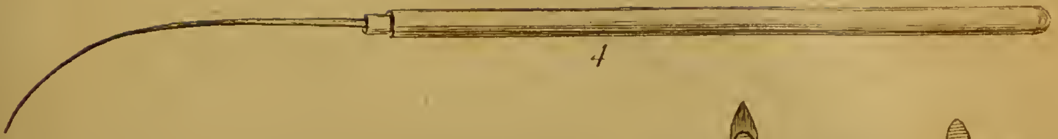
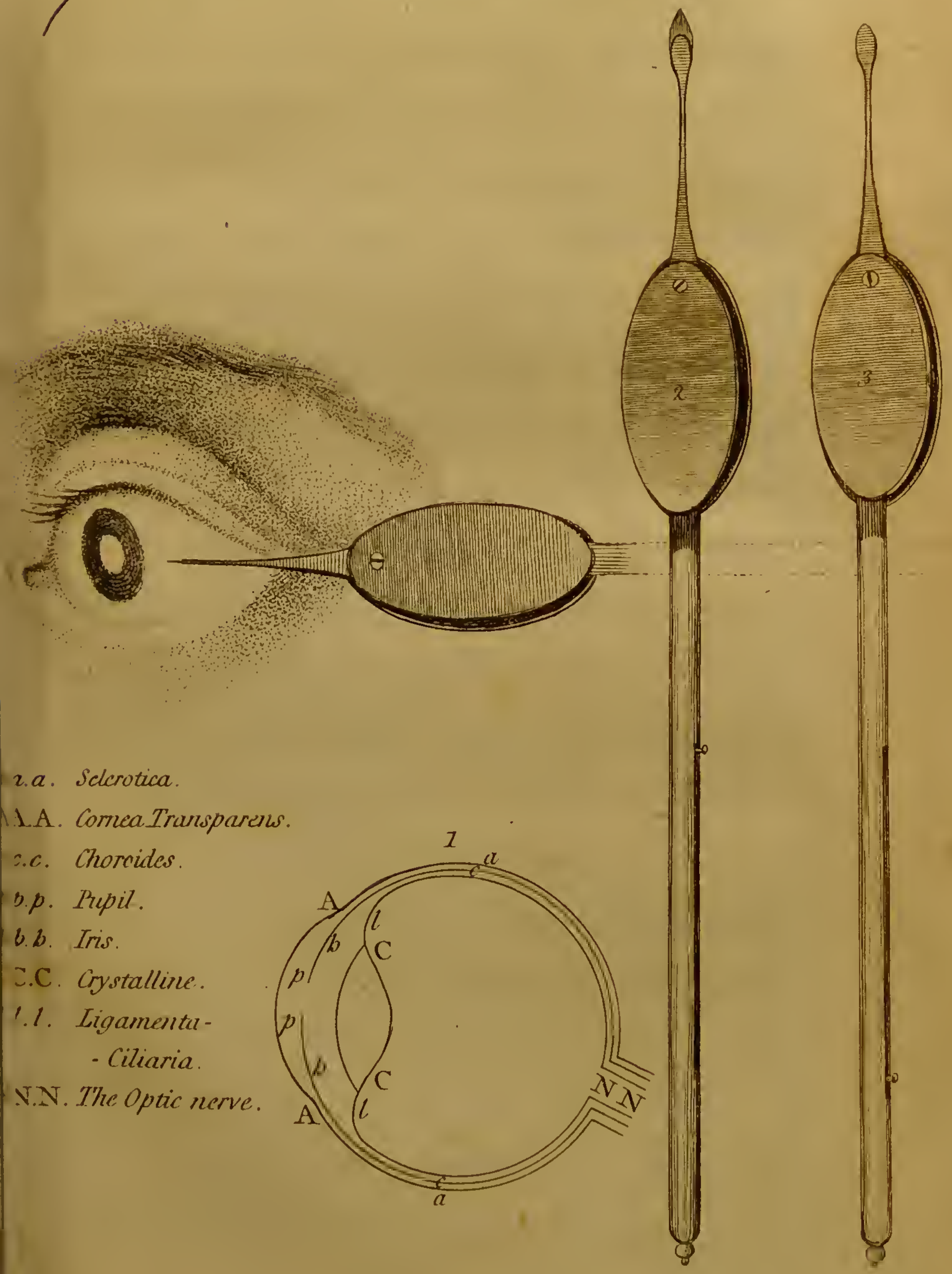
* In the plate No. 2. will be ſeen the form of the inſtrument, and the method of uſing it. Figure 2. ſhows the forceps, armed with the lancet. Figure 3. the ſame, with the lancet retracted. Figure 4. repreſents a fine director.

Fig. 1. refers to the deſcription of the eye in page 6.

2.

to front Page 34.





.a.	Sclerotica.
A.	Cornea Transparens.
.c.	Choroides.
.p.	Pupil.
b.b.	Iris.
C.	Crystalline.
.l.	Ligamenta- - Ciliaria.
N.	The Optic nerve.

moſt ſatisfactory termination of the operation which I have deſcribed, and what is to be aimed at. With regard to the practicability of this operation, I do not now ſpeak theoretically, having had ſeveral opportunities of proving it. If, however, any difficulty ſhould occur with regard to the extraction, or if from any reaſon it ſhould be thought more advantageous to leave the whole or any part of the cataract within the eye, this inſtrument, capable of acting in a double capacity, becomes the beſt of all poſſible couching needles, as being blunt it cannot wound the iris, or do any miſchief; being broad, it has great command over the lens, and, either ſhut or a little open, will readily tranſport any portion of the cataract to a part of the eye where it can lie out of the paſſage of light, till it is abſorbed, which, when freed from all its connections, takes place in no great length of time. I ſpeak with a degree of confidence of the abſorption, having many times obſerved portions of opake cryſtallines which have been completely detached from their connections by the couching needle, and which have been left in the aqueous humor both in the anterior chamber and behind the pupil; and I have watched them till they have gradually leſſened and become inviſible.—Thus then, either by couching or extracting, this inſtrument will be found capable of acting well in every caſe in which there are any grounds for expecting ſucceſs.

In caſes of adheſion of the coat of an opake lens to the iris, though we may not have hopes of complete viſion, we are ſometimes induced to endeavour at the removal of the opacity, being not unfrequently ſucceſsful in theſe doubtful caſes beyond our expectation. It is ſelf-evident that total blindneſs cannot be aggravated; an endeavour, therefore, to do good, where no harm can enſue, will ever vindicate itſelf.

Theſe caſes of adheſion are managed with great difficulty, when they are attempted through the cornea and pupil, as it is impoſſible but that it muſt be extremely awkward to introduce inſtruments proper for this purpoſe, particularly forceps, through ſo ſmall an opening, and within a circle of ſo delicate a texture as the iris—beſides the unavoidable riſk of tearing the vitreous capſule, and letting out more or leſs of that humor. Though, to a certain extent, if the other parts of the operation are ſucceſsful, the vitreous humor may be regenerated, the letting it out is important and dangerous, if it only reſpected the operation, which muſt be greatly embarraſſed by it, as by the loſs of it ſometimes a ſufficient vacuum is made to admit the cataract to ſink below the pupil, out of ſight and out of reach.

The common couching-needle is equally ill adapted to the ſeparation of theſe adheſions. In ſuch caſes I have often ſeen it uſed with great rudeneſs, being ſometimes turned round and round between the finger and thumb. Indeed, this is part of the direction for the uſe of it, as recommended by an eminent favorer of the operation, in order to diſengage any little obſtinate portion which it was impoſſible to get hold of for want of a *counter preſſure.*

To ſurmount theſe difficulties, and to remove all ſuch adheſions from behind the pupil, as can with prudence and propriety be removed, the inſtrument which I have deſcribed will be found eminently uſeful, as by its means the connections between the lens and the iris may be gently diſengaged, without any danger of injuring the iris, or letting out the vitreous humor, as was ſometimes the caſe in the common operation of extraction; and without the riſque of opening blood-veſſels, which, as was obſerved, ſometimes attended the uſe of the couching-needle.

It has been advanced by a favorer of

couching, to prove its ſuperiority over extraction, that, in caſe of failure, it may be repeated again and again, which cannot be done after extraction. If that be allowed a favorable circumſtance, it is equally applicable to the inſtrument I recommend, which, if neceſſary, might be again and again employed; but the inflammation which muſt neceſſarily follow every operation on the eye, makes it moſt deſirable that it may not require repetition; and one of the greateſt advantages which my plan embraces, is, that the ſmalleſt opake portion may be taken hold of and removed, which, if done completely, muſt preclude the neceſſity of any ſubſequent operation.

I need not remark, that examinations relative to the ſoundneſs or perfection of the other parts of the eye, ſhould be made previouſly to this operation, as it is neceſſary they ſhould be before every operation whoſe object is the removal of the cataract. It is obvious that it would be uſeleſs to remove an obſtruction to the rays of light, if the ſeat of viſion were incapable of receiving them. To expect ſucceſs from the operation, the patient ſhould previouſly be able to diſtinguiſh light from darkneſs, and the pupil retaining its natural roundneſs ſhould move freely. Attention to the firſt of theſe obſervations is abſolutely neceſſary; the latter may admit of ſome latitude, as I have known viſion ſucceed from the removal of an opake lens, which has had adheſions, and has been accompanied with an irregular iris. It is ſcarcely neceſſary to add, that the cornea ſhould retain its tranſparency.

Taking for granted then that the other parts of the eye have the proper characteriſtics of perfection, and are fit for the operation, it is not neceſſary for the uſe of this inſtrument to wait till the cataract ſhall become firm, or, indeed, to be ſolicitous about what particular ſpecies it is of, as whether hard or ſoft it may be removed by theſe means. If it ſhould prove fluid, the contents of the bag will be let out; and if any opacity continue in the capſule, it may be removed.

There are other circumſtances attending the uſe of this inſtrument, which will probably be found highly advantageous, and which, though ſufficiently evident to judges of the operation, it may not be unneceſſary to point out.

It ſhould then be obſerved, with regard to the wound which is made by the little ſpear to introduce the forceps, that it need not be more than one-fourth part ſo large as the inciſion which, in the uſual operation of extraction, is made through the cornea; and it is well worthy of remark, that this wound is made in a ſafe part behind the pupil, where the active or efficient parts of the eye are not concerned.

In the paſſage of the forceps through the vitreous humor, and in the uſe of them afterward,

terward, not nearly ſo much derangement of the interior of the eye is produced, as accompanies the common couching-needle, which was always uſed very freely, and preſſed down very low to enſure the poſition of the cataract in a part of the eye from whence it ſhould not riſe and re-appear; and all the miſchief which, as has been remarked, a ſharp inſtrument is capable of doing in the eye, is by theſe means avoided.

It may appear extraordinary to perſons unacquainted with the cauſe, but it is a fact, that, though any minute particle lying on the external coat of the eye cauſes ſo much uneaſineſs, by creating friction in the motion and action of one part of the coat on the other, the paſſage of an inſtrument through all the coats gives very little pain; ſo that except the tunica conjunctiva, the ſenſibility of which is not great, unleſs increaſed by irritation, the other coats appear to be inſenſible. This is a moſt pleaſing circumſtance reſpecting the operation; but what is of more importance, is, that the part in which the inciſion is made, is immoveable, conſequently the edges of it muſt remain in contact; and, as it is covered with the tunica conjunctiva, which is moveable, the wounds through the different coats can ſcarcely ever remain exactly oppoſite to each other; the opening being thus covered and cloſed, there can be no eſcape of either the vitreous or aqueous humor, and it muſt conſequently heal with facility by the firſt intention; and the happy reſult of theſe favorable coincidents is, that the operation is really followed with very moderate inflammation.

All theſe circumſtances are very materially different from having to attend to the management and diſpoſition of a large *moveable* flap of that moſt important part of the eye, the cornea transparens; and, beſides, when it is conſidered that in this operation the iris or pupil can never receive the ſmalleſt injury or moleſtation, I make no doubt that it will be allowed to poſſeſs manifeſt and great advantages.

Indeed I am much inclined to think that this inſtrument is calculated to embrace the advantages, and to avoid the inconveniences, attending all the operations which have hitherto been practiſed on the eye for the removal of the cataract; and, conſidering the ſubject in every point of view, I have great reaſon to hope, that, by theſe means, an operation of the firſt importance to mankind, which has hitherto been big with difficulty and danger, will be rendered comparatively eaſy and ſafe; and that it will be found capable of being executed by any practitioner who poſſeſſes an accurate knowledge of the ſtructure of the eye, has cool judgment, and a ſteady hand.

ASSERTIONS and opinions, however plauſible or well-founded, ſeldom obtain confidence, unleſs ſupported by facts ; and, more particularly on medical ſubjects, they can never juſtly be appreciated, until ſubmitted to the teſt of practice. I ſhall therefore ſubjoin an account of ſome caſes where the inſtrument has been employed.

When I had nearly completed it, I ſhowed it to Dr. Harriſon, of Horncaſtle, who was then in London. The Doctor ſo much approved of my plan, that he ſent immediately for two children, who, from the ſame parents in his neighbourhood, were born blind, to be brought to London. The eldeſt, Thomas Rainer, was near 17 years of age, of a ſpare, healthy habit. In the left eye was an apparently well-formed cataract, with a perfectly round and moveable iris. The cataract in his right eye appeared membranous, and had adheſions to the iris, which conſequently did not move freely. He could not diſcern the ſhape of any object, but could with either eye diſtinguiſh light from darkneſs; and if a ſtrong light was thrown on ſcarlet, ſome of the reflected rays paſſed round the cataract to the retina, and he could diſtinguiſh it from any other colour. Every other part of the eye being thus favorably circumſtanced, nothing ſeemed wanting but to remove the obſtructing medium, and to open a paſſage for objects to the ſeat of viſion.

January 26, 1801. The poor boy, very deſirous to have the operation performed, ſat down with the utmoſt tranquillity. I paſſed the inſtrument into the left eye in the manner I have deſcribed. When arrived at the cataract, I opened the forceps, and gently ſeized it. It proved to be a bag, containing a fluid, which was inſtantly let out, and filled the anterior chamber with a diluted milky colour, in ſome degree obſcuring the pupil, but not ſo as totally to hide the view of the forceps, with which I removed the whole of the capſula or bag which contained it. I was highly gratified at hearing the boy ſay that the operation gave him no pain; he was put to bed, and had a good night. The next day the eye was blood-ſhot, where the inſtrument had paſſed; the reſt of the eye was cool and quiet; the anterior chamber ſtill filled with the milky colour. On the 28th, having paſſed another good night free from pain, and the inflammation being moderate, he was ſuffered to get up; but the eyes were kept covered, as he now complained that when the eye was opened there was a blaze of light more than he could bear, and which, he ſaid, he ſaw through the lids when ſhut; by which I judged that the milky colour was diſſipating, and on examining the eye on the 29th, I found it nearly clear.—The inflammation continued very moderate, and at the end of the week a little ſuffuſion of blood continued, where the puncture was made; but in every other reſpect the eye was well, the pupil perfectly round, the aqueous humor clear, and no veſtige of the cataract remained; the light was now no longer diſtreſſing to him, and he could diſtinguiſh objects. I was curious to obſerve if they appeared to him inverted; but the eye was too unſteady, and the ſight too confuſed, to permit that point to be aſcertained: however, on being ſhown different colours, he immediately diſtinguiſhed red from the reſt, and ſaid it was what he had been uſed to ſee.

Monday, 2d February, exactly one week from the former operation, the eye on which the operation had been performed was ſo eaſy, and the boy in every reſpect ſo well, that I determined to perform it on the other. He ſat down with the ſame compoſure as on the former occaſion—a proof how little pain he had then felt. In the ſubject of the operation which I am now to deſcribe, the cata-

act, as was remarked, was perfectly white,
nd had attachments to the iris, which be-
ng nearly immoveable gave but ſmall hopes
f perfect viſion ; but as the eye was ſenſible
f the impreſſion of light, it was worth the
rial. I paſſed in the inſtrument as in the
ther eye, and, bringing one blade of the for-
eps between the cataract and iris into view
ehind the pupil, ſeized the opake object,
hich proved, as it had appeared to be, mem-
ranous. It has been remarked, that cata-
acts in perſons born blind are in general
uid ; and as the cataract in the other eye
as a bag containing fluid, I am inclined to
ink that this had been of the ſame kind,
ut by ſome accident had burſt, and what
ow remained was the coat or cyſt which
ad contained it, and was become thick and
pake. However that might have been, I
ently ſeparated it from the iris, and endea-
oured to bring it away; but it was ſo ten-
er that it broke to pieces, and a fragment

came through the pupil into the anterior chamber. I however brought away the largeſt part of it; but on looking into the pupil there was ſtill a portion attached to the under part of the iris, and which occaſionally roſe up in ſight; on which I again introduced the inſtrument, and, uſing it as a couching-needle, preſſed down the little portion till it was quite out of ſight, and the eye appeared perfectly clear. There was very little loſs of the vitreous humor, and the whole operation terminated much to my own ſatisfaction, and to the gentleman's who aſſiſted me.

As on the former occaſion, the patient felt little pain, and had good nights.—On the 5th of February I examined the eye which had laſt been operated on, and found it clear, excepting a ſmall portion of capſula, which I had depreſſed, but which again ſhowed itſelf at a diſtance behind the pupil, but not ſo as to intercept the light, and conſequently not to make it an object for repeating the operation. He complained that the light was too ſtrong, but he could diſcern objects, and for the firſt time diſtinctly ſaw his father, which gave him more ſatisfaction than can be deſcribed.—On the 7th the eye was clear, and there was little inflammation; he was therefore permitted to walk about the room, with a ſhade above his eyes. He ſaw well his way, diſtinguiſhed objects which were purpoſely placed in his walk, and avoided them.—On the 8th, the nurſe informed me he had cut his own bread into his baſon, and had helped himſelf at dinner. Yet ſtill he had much to learn; and when I examined his eyes, they were rolling about like thoſe of a new-born infant, and he could with difficulty fix them on any object: when, however, he had once fixed them, he could retain them in that ſituation. But though he could diſcern objects, he could not judge of diſtances; and, on diſcovering a ſhilling on a table, he made ſeveral attempts with his hand, which wandered either laterally, or too far or too ſhort, before he could take hold of it. This diſagreement, however, between the action of the hands and the eyes grows leſs; the eyes gain ſtrength, and are leſs wandering. He has been fitted with ſpectacles, which within their proper focus much aſſiſt him. I was curious to obſerve the effects which the firſt impreſſion of objects produced on his imagination, and in what ſituation they appeared to him; but my inquiries generally proved nugatory. I was not ſo fortunate in that reſpect as Mr. Cheſelden, in the caſe which he has related of a young gentleman who was born blind, and received his ſight. His patient was intelligent, ſenſible, and capable of explaining his ideas ſo well, as to attract the particular notice of the celebrated author of the Eſſay concerning Human Underſtanding.

With regard to the ſubject of the preſent Memoir, after every attention and obſervation, I only diſcovered that his ſtock of original ideas had probably been ſmall, that no pains had been beſtowed to improve them, and from a ſoil ſo barren and uncultivated little was to be gained. After remaining a few weeks longer in London, during which time his eyes improved in ſtrength and uſe, he returned, unattended, to his friends in Lincolnſhire.

The ſiſter of this young man, who came with him, had a cataract in each eye, both of which were in every reſpect moſt unexceptionable objects for the operation, and I had not the ſmalleſt doubt of her capability of being made to ſee with both eyes; but notwithſtanding the entreaties of her father, and though ſhe ſtaid in London till ſhe was convinced her brother had received his ſight, ſhe could not be perſuaded to ſubmit to the operation, which, without the moſt complete acquieſcence on the part of the patient, cannot be attempted.

THE next perſon who came under my care was a negro, who had been received into St. Bartholomew's Hoſpital on account of a bad leg, and general ill ſtate of health. He was about forty years of age, of a full corpulent habit, his eyes large and prominent, and the tunica conjunctiva remarkably looſe and redundant. The left eye was only cloudy, and did not prevent him from ſeeing, though dimly; in the right eye was a cataract, very white, perfectly opake, and in every reſpect well circumſtanced, though the man himſelf was a very bad ſubject for any operation. His health, however, being ſomewhat improved, and the poor fellow importunate to have the operation performed, induced me to undertake it. Having found in the preceding operations that the blades of my forceps were too narrow, and that the little ſpear would with equal facility carry in a broader pair, I ſaw no reaſon why I ſhould not embrace what muſt be an advantage. Accordingly I got ſuch a pair conſtructed; and on the 20th of February I paſſed this improved inſtrument into the eye, in the manner before deſcribed, with which I ſeized the cataract, and brought out as much of the body of it as filled the hollow or ſpoon of the blades, which was nearly the whole. A ſmall portion of the lower edge of the cataract ſeparated as it was coming out, paſſed into the anterior chamber, and ſunk down to the bottom of the cornea transparens. There alſo remained a ſmall portion of capſula in the upper part, which was viſible through the pupil, and which, by again introducing the forceps, I brought away. He complained of no pain during the operation; in the following night he felt an aching pain, which was relieved by an opiate; this was followed by a conſiderable inflammation, but not more than might have been expected from ſuch a ſubject after any operation on the eye. At the end of a fortnight from the operation, though the eye ſtill continued inflamed, the pupil was clear, and the iris perfectly round. The portion which had fallen into the anterior chamber was nearly abſorbed, and there remained no impediment to viſion. This man, very different from the boy, had known the uſe of his eyes until the formation of the cataract, which was of about five years ſtanding. So ſoon therefore as he found he could bear the light, he made the experiment of ſhutting the other eye, and was delighted to find that he could diſtinguiſh a variety of objects. March the 20th, the pupil was perfectly round and clear, the iris moved freely, and, though ſome degree of inflammation ſtill ſubſiſted, he was able to ſee well.

I cannot reſiſt the gratification of adding, that I had an opportunity, accompanied by my colleague Mr. Long, of ſeeing him again on the 19th of June, 1801, exactly four months after the operation. Mr. Long, as well as myſelf, was ſatisfied that the inflammation was completely gone, that there was not the ſmalleſt veſtige of the cataract in the eye, on which the operation had been performed, but the pupil was round and perfectly clear, to which the pupil in the other eye was a ſtriking contraſt, being much more dull and opake than when I examined it ſome months before.

The poor fellow was, at the time we ſaw him, in bed, and very ill, under the care of Dr. Budd. His principal complaint was inflammation of the lungs, attended with dropſy. Theſe continued to increaſe till the 15th of July, when he died. After death I had an opportunity of examining the ſtate of both eyes. In the left was a cryſtalline humor becoming opake, being of a pearl colour; it was of a firm conſiſtence, and ſhortly would have been a complete cataract.—In the right eye, on which the operation had been performed, the pupil was perfectly clear and round, and, on carefully opening the eye by a circular inciſion through the coats, no appearance of cataract could be found, but the ſpace which the cryſtalline had occupied was filled with vitreous humor beautifully tranſparent. The uvea and pupil ſeen from within the eye were equally round and perfect as the pupil and iris appeared in the front view through the cornea.

On examining the part both internally and externally, where the inſtrument had paſſed through the coats, the cicatrix or mark of its paſſage was ſcarcely perceptible. The tunica conjunctiva was not at all adherent, but moved over the ſclerotica with perfect facility. In ſhort, it would have been impoſſible to have obtained a ſpecimen more complete in every part of the perfect ſucceſs of the operation.

APRIL 5, 1801, a young woman about twenty-two years of age was ſhown to me, who had been afflicted with cataracts in both eyes. She ſaid that ſhe had been quite blind eight years; that about eight years before that period, her ſight began to fail, and gradually was extinguiſhed. Ten months before I ſaw her the operation of extraction, by dividing the cornea, had been performed on the left eye. On examining this eye, I found the pupil drawn down to near the bottom of the cornea, contracted ſo as not to admit of any thing larger than a ſmall needle, very ſimilar to that repreſented in fig. 4, plate 1, and perfectly without motion. From what cauſe theſe appearances had been produced I am unable to ſay; but it is evident that they muſt have taken place ſubſequent to the operation, as before that was performed it may be preſumed that it was of the natural ſize and ſhape, and was indued with motion, otherwiſe it would not have been choſen for an operation in preference to the other. In the ſtate in which I found it the eye was certainly uſeleſs as to every purpoſe of viſion, although through the ſmall aperture ſhe could diſtinguiſh light from darkneſs.

In the right eye remained a cataract, attended with a moveable pupil, and in every reſpect well circumſtanced to admit of aſſiſtance by means of an operation. I was requeſted to perform it; but as ſhe was ſcarcely recovered from a fever, it was poſtponed. On the 22d of the ſame month (April), the patient being pretty well in health, the operation was no longer delayed.

Having placed her in a convenient ſituation, I paſſed in the inſtrument as before directed, diſcharged the point, and brought the blades of the forceps into ſight behind the pupil; then, carefully opening them, ſeized the cataract; which being brought away, the pupil appeared perfectly clear. However, after the forceps were removed out of the eye, a ſmall portion which had eſcaped, being more than the forceps would hold, roſe and preſented itſelf behind the pupil; but having had ſo many opportunities of ſeeing detached portions of cataracts diſſolve, and being ſatisfied in this caſe that I had ſeen the pupil clear, I judged it unneceſſary to reintroduce the inſtrument. The girl ſaid the operation was not painful. A few minutes after it had been performed, I examined the ſtate of the eye, and was well ſatisfied at finding the globe apparently as full as before the operation, the cornea prominent, no aqueous humor having been let out; the pupil round, dilating and contracting more freely than before, owing to the greater admiſſion of light, of which the patient was very ſenſible.

The morning after the operation I viſited her, and found that ſhe had paſſed a very good night, and was perfectly without fever or pain. On examining the eye, a cloud remained in the pupil. On the ſecond day ſhe ſaid ſhe had felt ſome pain in the eye during the preceding night, but leeches having been applied in the morning to the temple, had relieved her. On looking now into the eye, the pupil was become more clear, and ſhe complained that the light was too painful to bear. The curtains were therefore cloſed. On the 28th, ſix days from the operation, the eye was free from inflammation, ſhe could bear the light, ſaw her own hands, and deſcribed my dreſs. The 29th ſhe was perfectly eaſy, was walking about, avoided any obſtacles in her way, and deſcribed the nurſe's dreſs. The 4th of May, twelve days from the operation, ſhe could diſtinguiſh objects and colours; but the little cloud ſtill remained, and prevented her from ſeeing ſo well in a ſtrong light, when the pupil was contracted to a ſmall ſize, as in the duſk of the evening, when it dilated more freely, ſo as to receive a larger body of light round the circumference of the little cloud: which plainly appears to grow thinner; and there is every reaſon to expect that, as in the eye of the negro, it will be totally abſorbed, and conſequently render any further operation unneceſſary.—June the 9th. I have the pleaſure to ſay, that the cloud is almoſt inviſible. She ſees every object, walks out by herſelf, is delighted with every thing ſhe ſees in the ſtreets, and, as ſhe expreſſes herſelf, is never tired with looking. In the markets ſhe diſtinguiſhes the various articles, ſome of which ſhe remembers; but in general they are new to her, as ſhe was too young when her ſight firſt failed to retain any recollection of them.

In the caſes preceding the laſt, the inſtrument was paſſed in through the coats of the eye vertically, and parallel with the edge of the cornea, and the operation ſucceeded well, as has been ſhown. However, in the laſt I introduced it in a horizontal direction, which method, from experience, I now prefer, for this plain reaſon, that when the lancet is retracted, the forceps may be eaſily turn'ed vertically; and then the more they are expanded to ſeize the cataract, the cloſer they keep the ſides of the inciſion together, by which means any conſiderable diſcharge of the humors is abſolutely prevented; and the wound made in this direction heals with the ſame facility as in the other. It is ſcarcely neceſſary to obſerve, that, when the forceps are to be brought out, they ſhould again be in a horizontal direction.

It was my intention to wait for further inſtances where the inſtrument ſhould have been employed; but being informed that ſome ſpurious imitations of it have already found their way into other hands, I ſhall no longer delay this publication; to which indeed I am the more readily induced, from conviction that the caſes already cited are ſufficient to eſtabliſh the ſafety with which the inſtrument may be uſed, and the practicability of this mode of removing the cataract.

FINIS.

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POSTSCRIPT.

THE reaſon aſſigned in the laſt page has certainly urged me to a more haſty publication than I had intended, to which I was alſo encouraged by the ſucceſs I had experienced: yet, however confident I may feel, I am not the leſs ſenſible of the importance of the ſubject, and of the circumſpect deliberation which it requires; with this perſuaſion I ſhall add ſome obſervations on thoſe objections to my plan which appear to me moſt likely to occur to others.

It may be ſaid, that through the inciſion behind the iris there muſt be a loſs of part of the vitreous humor.—This will undoubtedly happen, and it will be more or leſs according to the circumſtances and difficulties of each particular caſe. In thoſe which I have recited ſome of the vitreous humor eſcaped, yet on the following day there was no appearance of deficiency, and the globular ſtructure of the eye was as complete as if no operation had been performed. In the common operation of couching I have very often ſeen a conſiderable portion of the vitreous humor eſcape, yet I have never known an inſtance, in which, after couching, it was not regenerated, and apparently as freely as the aqueous, which muſt always be completely evacuated in the operation of extracting through the pupil.—However, if attention be paid to the method which I have recommended, and the operation be dexterouſly performed, the loſs of the humors will be inconſiderable at the time, and the cloſe contact of the ſides of the wound will prevent it from happening afterwards.

It may be urged that the cryſtalline lens may be too large to be brought out through the inciſion.—This will certainly ſometimes be the caſe, ſuppoſing it to be in its entire and perfect ſtate. The opake cryſtalline examined after death in the eye of the negro was certainly too large to be thus extracted; but I muſt obſerve that it appeared ſo large, and of ſuch firm conſiſtence, that it would have been impoſſible to force it through the iris without great violence: this was a remark which ſtruck me at the time when I had the opportunity of comparing the ſize of the cryſtalline with that of the iris, and forcibly demonſtrated, at leaſt to my conception, that in the caſe of a large firm lens, the advantage would be clearly in favor of my operation, becauſe the compreſſion of the forceps will do much in leſſening the object, and it may by this method be brought away piece by piece; or, if the whole cannot be removed, by converting the inſtrument into a couching needle and depreſſing, it may be placed where it will not interrupt the ſight: Theſe circumſtances cannot take place after the inciſion is made through the cornea; in that caſe let the cataract be ever ſo large and firm, it muſt be preſſed out whole and entire through the pupil, as I conceive no operator would leave it behind after having proceeded ſo far in ſearch of it; and it cannot as I apprehend be leſſened, by any means, through the pupil: indeed it is impoſſible to foreſee what its ſize or conſiſtence may be before it has actually made its paſſage through and appears in the anterior chamber. —It is not unreaſonable to ſuppoſe that the cryſtalline which I extracted from the right eye was of the ſame ſize as that which I found in the left of *the ſame ſubject*, and which appeared to me almoſt incapable of being paſſed through the pupil; yet by the compreſſion of the forceps, by bringing away the greater part piece-meal, and leaving a detached portion to be abſorbed, the iris remained without the ſmalleſt injury, and the ſucceſs of the operation was ſuch as has been deſcribed.